A NEW WOOLLY-HEADED, MONOCEPHALOUS *ERIGERON* (ASTERACEAE) FROM MONTANA

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Abstract

Erigeron lackschewitzii Nesom and Weber (Asteraceae) is described from the Rocky Mountains of northwestern Montana. Its closest relatives appear to be *E. simplex* Greene and *E. grandiflorus* Hooker.

Two recent collections from Montana have proved to represent a previously undescribed species of *Erigeron*.

Erigeron lackschewitzii Nesom & Weber, sp. nov.

Ab affinibus *E. simplex* et *E. grandiflorus* distinctus radice palari longa crassa foliis basalibus lineari-oblanceolatis radiis parvioribus et caulis pubescentia lanata non manifeste glandulosa (Fig. 1).

Perennial herbs from a long, woody taproot with few or no branch or adventitious roots; caudex simple or with a few short (up to 2.5 cm long), thick branches to which old petiole bases may remain attached, each branch producing 1–5 stems. Stems 3.5–8 cm high, more or less ascending, unbranched, lanate-villous with loosely ascending to appressed, white-vitreous, flattened and twisted trichomes mostly 0.8–1.8 mm long, more sparsely pubescent near the base. Basal leaves linear-oblanceolate to narrowly oblanceolate, 20–60 mm long, 1.2–3 mm wide, gradually narrowed to a petiolar region, usually widened and purplish at the very base, the apices acute or rarely obtuse to rounded, the margins entire, often with a thin, stramineous rim, cauline leaves 5–10 in number, similar to the basal, slightly reduced upwards or not, extending fully halfway up the stem; leaves densely to sparsely pubescent with a mixture of spreading and appressed or ascending trichomes up to 3 mm long, long-ciliate near the petiole base. Heads solitary; involucres shallowly hemispheric, 12–17 mm wide (pressed), 6–8 mm high; phyllaries in ca. 3 equal series, herbaceous, sometimes with thinner margins, green, often with a golden midvein, narrowly lanceolate with acuminate, loose or reflexed tips, 0.5–1 mm wide, 5–8 mm long, densely white-villous. the trichomes usually with

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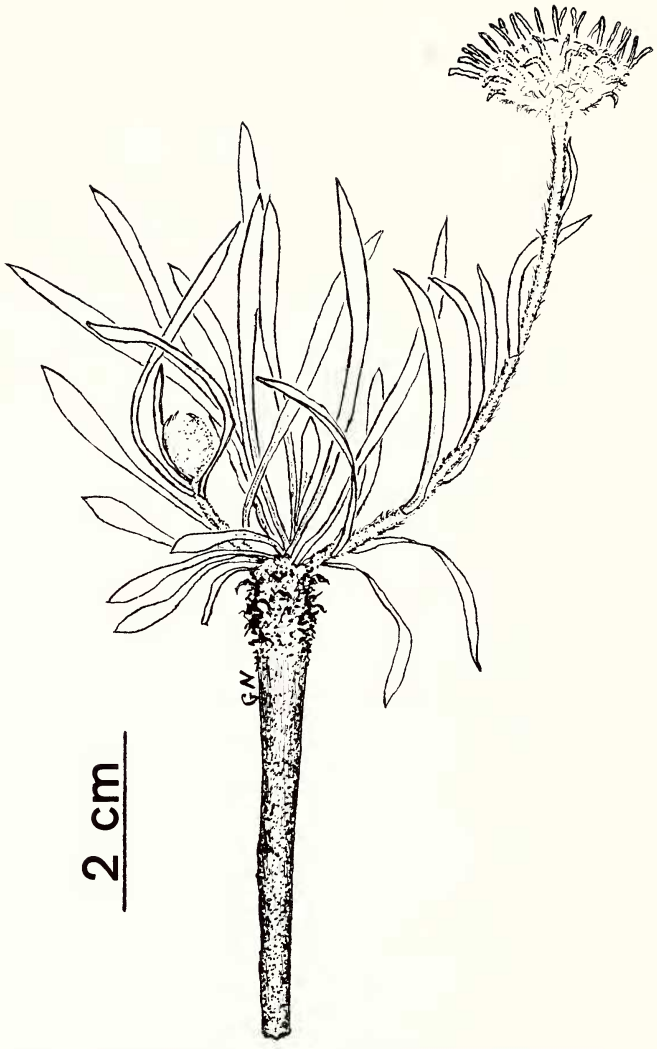

FIG. 1. Habit of *Erigeron lackschewitzii* Nesom & Weber (isotype).

blackish-purple crosswalls, at least near the base, the granular glandularity obscured by the lanate indument; receptacles not observed. Ray flowers fertile, 30–68 in 1(–2) series, apparently somewhat erect, 7.8–11.3 mm long, the tubular portion 1.8–2.5 mm long, conspicuously pubescent with both seriate and long uniseriate trichomes, ligules narrowly obovate, 1.6–3 mm wide, not reflexing or curling, drying light lilac to purple, 4–7 veined, the margins slightly introlling, apex

with 2–3 shallow to deep notches; style branches 0.8–1.1 mm long, partially included within the tube. Disc corollas yellow, tubular, slightly indurated above the lower ¼ but without an inflated or constricted portion, pubescent with biseriate and uniseriate trichomes, 3.5–4.3 mm long, 0.5–0.7 mm wide, lobes 0.6–0.9 mm long, erect; anther thecae 0.7–1 mm long, with lanceolate apical appendages 0.6–0.9 mm long; style branches 0.7–1 mm long, including the deltate to shallowly triangular collecting appendages 0.2–0.3 mm long. Achenes oblong-obovate, radially compressed, tan, with 2 thin ribs, ca. 2.3–2.8 mm long and 0.7–0.8 mm wide, fully mature achenes not observed, strigose with long, untwisted, duplex trichomes; carpopodium of 5–7 rows of cuboidal cells with a lower, inner row of subsidiary cells; pappus of ray and disc flowers similar, of 15–24 relatively thick but extremely brittle bristles 2.9–3.5 mm long, ca. ¾ as high as the disc corollas but somewhat uneven in length, with an outer series of numerous, conspicuous bristles and flattened squamellae 0.4–0.9 mm long.

TYPE: USA, Montana, Flathead Co., Bob Marshall Wilderness Area, Flathead Range, "N Wall" of continental divide, summit of mtn. above Sock Lake, 2500 m, common in *Arctostaphylos* polygons, also in dry meadow, associated with *Erigeron radicatus* and *Townsendia parryi,* 26 Jul 1979, *K. H. Lackschewitz 9101* (Holotype: MONTU!; isotype: COLO!).

PARATYPE: USA, Montana, Teton Co., Bob Marshall Wilderness Area, Flathead Range, summit of Headquarters Pass, 2365 m, large colony in small, dry meadow on the narrow saddle, 29 Jul 1978, *Lackschewitz 8487* (COLO, MONTU, NY).

The new species is named for its collector, Klaus Lackschewitz, University of Montana, Missoula, who has made great contributions through his perceptive field work to our knowledge of the vegetation of western Montana. As now known, *E. lackschewitzii* is a narrowly endemic population system along the continental divide in northwestern Montana. The description has been drawn from a total of 18 individual plants from the two collections.

Erigeron lackschewitzii apparently is most closely related to *E. simplex* Greene and the "southern alpine race" of *E. grandiflorus* Hooker (sensu Spongberg 1971). According to Spongberg's distributional data (1971), the new species could be expected to occur sympatrically with *E. simplex* but not with *E. grandiflorus*; all three taxa are alpine in habitat. All three are monocephalous with lanate-villous pubescence on the involucre, usually blue-rayed, entire-leaved, and have a conspicuous, squamellate, outer pappus. The trichomes of the involucres often have colored cross-walls, particulary near the base, but the pubescence is never blackish or dark-colored in overall appearance.

Erigeron lackschewitzii differs from both *E. simplex* and *E. grandiflorus* in several features: 1) basal leaves linear-oblanceolate to narrowly oblanceolate, without a well-demarcated blade (vs. spatulate);

2) ray flowers 30–68 (vs. 50–125 in *E. simplex* and 56–123 in *E. grandiflorus*); and 3) stem pubescence woolly-villous with glandularity lacking or not at all evident (vs. stem pubescence spreading but not villous or woolly, with erect, stipitate-glandular trichomes usually conspicuous). There are two types of glandular trichomes on the upper stems of *E. grandiflorus*: the biseriate, large and conspicuous, often stipitate-glandular Type C, and the uniseriate, much smaller, usually appressed Type B that impart a somewhat viscid appearance (see Nesom 1976). The Type C trichomes of *E. simplex* are much smaller, the whole pubescence is more variable in density, and the glandular trichomes in particular may be less abundant than on *E. grandiflorus*. In neither species are the Type A trichomes so long and dense as to obscure completely the other types of pubescence, as is the case of *E. lackschewitzii*. Probably the most conspicuous unique feature of plants of the new species is their production of a long, thick taproot lacking any conspicuous secondary branches. Plants of *E. grandiflorus* sometimes produce a short length of thick, unbranched root immediately below the caudex, but this develops into a fibrous system further below; plants of *E. simplex* always produce fibrous roots, very often from a slender, branching caudex.

Achenes of *Erigeron lackschewitzii* produce a greater number of pappus bristles (15–24) compared to the southern alpine race of *E. grandiflorus* (9–14); achenes of *E. simplex* and the northern races of *E. grandiflorus* produce bristles paralleling those of *E. lackschewitzii* in number (Spongberg 1971).

Judging from the very few and highly abortive pollen grains produced by plants of *Erigeron lackschewitzii,* the species is apomictic (and probably polyploid). Of its two putatively close relatives, Spongberg (1971) found that *E. simplex* is a sexual diploid and *E. grandiflorus* a triploid apomict, and he hypothesized that the former was involved in the synthesis of the latter. It might be tempting to ally the new species with *E. grandiflorus* because of its apomictic condition, but the plants of *E. lackschewitzii,* uniform in their diagnostic characteristics, differ more strongly from *E. simplex* and *E. grandiflorus* than the latter do between themselves. If *E. lackschewitzii* were thought to be an allopolyploid, it would be unlikely that its ancestry were the same as that of *E. grandiflorus*.

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